

Factors Influencing Preservice Teachers' Decisions to Major in Agriscience Education

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## ABSTRACT

The purpose of the study was to acquire information that could assist the Department of Agricultural Communication, Education, and Leadership in developing materials and targeting audiences to assist in addressing the shortage of agricultural science teachers across Ohio. The objective was to describe factors influencing students to choose Agriscience Education as a major in college. In this study, a census (N = 19) of the students participating in the 2017 Preservice Teacher Professional Block Program at The Ohio State University completed a questionnaire describing factors influencing their decision to choose Agriscience Education as a college major. The research questionnaire was distributed to all students with 100% participation. The questionnaire was comprised of a 5-point Likert scale, from strongly disagree to strongly agree, measuring factors such as desire to work with students, influence from parents, past agricultural teachers, friends, and their own experiences in agricultural organizations such as FFA and 4-H. From the data, the top factors influencing students to enter the major included: their experience with traditional agricultural student organizations (i.e. 4-H, FFA), the opportunity to teach students, the opportunity to educate the public about agriculture, and the chance to teach a community about many aspects of agriculture. Conclusions from the data included putting emphasis on FFA events and other agricultural related organizations' events that encourage members to use their strengths in scenarios dealing with educating the public. Specifically, educating the public about agriculturally-related concepts was important. Implications include encouraging students to be involved with events, so that more students may be interested in entering the agricultural education program and therefore, becoming agricultural science educators.

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## CHAPTER 1

### INTRODUCTION

#### Describing Factors Influencing Preservice Teachers' Decisions to Major in Agriscience Education

A shortage of agricultural educators across the country has led to agricultural programs being forced to close in the last several years due to not being able to fill the teaching positions. Schools all across the state of Ohio, and the country are disenrolling students from agricultural education courses because there are not enough qualified teachers to teach the curriculum. Without agricultural education being taught to our students, our future generations will continue to believe that chocolate milk comes from brown cows, farmers are torturing animals, and farming is just about raising sows, cows, and plows. We need to continue educating our future generations about agriculture, so that consumers are accurately informed.

In order to teach agriculture, we need more qualified individuals. Because of this issue, this study was designed to describe the factors that influence students' decision to major in agriscience education. The researchers examined different people and experiences that influenced undergraduates' decisions to study agriscience education at The Ohio State University. We need to pinpoint such factors, so we can encourage more individuals to become agricultural educators. If we find the reason why individuals want to teach agricultural science, then we can encourage them to discover the pathway that will excel their inner talents of educating others about agriculture. By encouraging students to follow their talents of educating others about agriculture, we can produce more informed consumers.

### Statement of the Problem

Through previous research, it is understood that the country is short 60,000 teachers and growing (King). This demand is across all teachers in all disciplines, but is seen in agricultural educators drastically. We need more agricultural educators if we want to educate consumers about agriculture.

### Purpose of the Study

The purpose of this study was to describe perceptions of preservice teachers in Agriscience Education toward A Modern Philosophy of Immersion for Teacher Preparation by understanding the factors that influence choice of an agriscience education major.

### Research Objective Guiding the Study

The objective was to acquire information that could assist the Department of Agricultural Communication, Education, and Leadership in developing materials and targeting audiences to assist in addressing the shortage of agricultural science teachers across Ohio. The objective was to describe factors influencing students to choose Agriscience Education as a major in college.

## Definition of Terms

### **Constitutive Definition**

Immersion Experiences - “a 21st century curriculum of immersion in agriscience teacher preparation, is one that mixes non-traditional context-setting with traditional, tested teaching approaches like problem-solving, and adds delivery strategies like experiential learning to weave A Modern Philosophy of Immersion for Teacher Preparation” (Whittington, 2014, p. 1).

### **Operational Definition**

*Student Preparedness* – Students’ self-reported level of preparation to engage in selected immersion activities related to the professional block.

*Persuasion* - Outside variables (teachers, parents, samples, not individually controlled) impacting decisions

*Decision* - Deciding whether or not to study Agriscience Education in the future, hesitation, indicated adoption, internal reflection

## Limitations of the Study

Participation in this study was limited to preservice teachers in the 2017 professional block at The Ohio State University.

## CHAPTER 2

### REVIEW OF LITERATURE

#### Conceptual Framework

The term immersion education came to prominence in Canada during the 1960s to describe innovative programs in which the French language was used as a medium of instruction for elementary school students whose home language was English (Cummins, 1998). In the United States, two-way immersion (TWI) is an educational approach that integrates native English speakers and native speakers of another language for content and literacy instruction in both languages (Howard & Christian, 2002). Considerable research has demonstrated the effectiveness of the model for both native English speakers and native Spanish speakers (Howard & Christian).

Merriam-Webster (2015) defined immersion as, complete involvement in some activity or interest. Consequently, this study does not incorporate immersion education experiences to the extent utilized by Howard and Christian (2002), but for the purposes of this study, the model meets the definition of Merriam-Webster. In this study, “a 21st century curriculum of immersion in agriscience teacher preparation, is one that mixes non-traditional context-setting with traditional, tested teaching approaches like problem-solving, and adds delivery strategies like experiential learning to weave A Modern Philosophy of Immersion for Teacher Preparation” (Whittington, 2014, p. 1).

A Modern Philosophy of Immersion for Teacher Preparation (see Figure 1), is reflective of immersion education (Howard and Christian, 2002). Through context-setting, problem solving, experiential learning, and assessment opportunities, preservice teachers gain valuable experiences before entering student teaching (short term) and careers (long term). Developing a series of immersion experiences for preservice



agriscience teachers provides opportunities to reinforce cognitive learning of educational theory, concepts, and principals. The immersion also provides psychomotor activity related to integration and application of content and experience in 21st century, global, agriscience classrooms. In this study, the researchers were interested in describing the final immersion experience in the model (see Figure 1). The final immersion experience provided an opportunity for preservice teachers to teach learners in a 21st century, global, agriscience classroom.

#### Preparation to teach Factors of Influence

In 2015, Hegerfeld- Baker, Anand, Droke, and Chang of South Dakota State University conducted research via an online survey. 1,826 students from three colleges of ABS, EHS, and AS served as the sample. 458 students at SDSU partook in this online survey regarding the influence of factors related to extracurricular activities, aptitude, environment, relationships, career ambitions and education experiences *on a students' choice of major*. Researchers hoped to *identify the predictability of factors influencing a student* to choose a STEM Major. The U.S. of Labor Statistics projects a 10% increase in demand for professionals in degrees related to food and agricultural science in the years 2010 to 2020. Although, there may only be 55% qualified professionals to fill such a demand. The survey incorporated personal and professional goal statements. Participants assigned a numerical value of a self-perceived level of influence. Majority of students in the sample were in their first semester of college. Date showed teachers were not a significant factor in this study, but was in another study performed by Drake (2007). The factors in this student revolving relationships were not significant on students' decisions.

However, results did indicate that students are 1.5 times more likely to choose a STEM major if passion for their career and job satisfaction were important. Additionally, students are 1.98 times more likely of choosing the same if they value financial gain/stability. Results of the study did indeed support the hypothesis. More research, however, is needed focusing on the impact of high school classes that may influence such a decision.

Along with this study, Lawver of the University of Missouri also looked specifically at the factors influencing agricultural education students' choice to teach. The researcher looked at constructs including ability to shape the future of adolescents, job security, salary, high demand time for family, and many other factors that take part in choosing to teach. By looking at this research, we can use some of these similar factors to ask our participants why they chose such a major for their own future.

## CHAPTER 3

### METHODOLOGY

#### Purpose of the Study

The purpose of this study was to describe perceptions of preservice teachers in Agriscience Education toward A Modern Philosophy of Immersion for Teacher Preparation by understanding the factors that influence choice of an agriscience education major.

#### Research Objective Guiding the Study

The objective guiding the study was to describe factors influencing preservice teacher's decision to major in agriscience education.

**Methodology.** The study utilized qualitative content analysis of transcripts of a structured focus group to identify themes related to research objectives. The population for this study was 19 preservice teachers in agricultural education at the university level. The focus group debriefs were transcribed by a third party to ensure trustworthiness of the results.

#### Target Population

**Population.** The population (N=19) for this study was the 2017 pre-service agriscience teachers, in professional standing, at The Ohio State University. The research design focused on pre-service teachers during classroom and program immersion experiences. Pre-service agriscience teachers in professional standing, the semester before student teaching, are enrolled in a set of courses referred to as The Pre-service Professional Block

(*The Block*). Within *The Block*, students are provided experiences that immerse them in content delivery and classroom management. Data were collected after *The Block* experience while participants were at their cooperating schools. The researcher described the pre-service immersion philosophy, and drew conclusions regarding student perceptions of the immersion experiences in meeting the needs of pre-service teachers.

### Response Rate

**Data collection.** As an approach to integrating an immersion philosophy in pre-service teacher education, faculty and staff implementing the pre-service agriscience teacher program at The Ohio State University developed several immersion experiences for pre-service teachers. The experiences included opportunities for pre-service teachers to plan, teach, and engage with adult, adolescent, and elementary learners in formal and non-formal learning environments, and to reflect upon their experiences. As an example, one of the immersion experiences developed for pre-service agriscience teachers included teaching diverse student populations in an urban school, which is a non-traditional pre-service agriscience learning environment. Additional immersion experiences included, teaching learners with Individualized Education Plans and 504 Plans in a non-school environment, teaching in traditional rural learning environments, teaching agricultural literacy in an affluent suburban elementary school environment, and teaching in non-formal adult learning environments. To guarantee confidentiality and anonymity, the researcher had participants use only a course assigned number when submitting work associated to the study. The researcher also assured participants that their names would never relate to their numbers for any reason during the study.

All data, for the pre-service teachers, were collected across a 14-week semester. The researcher communicated, in advance, the potential need for further discussion and assistance in the future, including a review of the interview report for the member check.

***Gaining access.*** Gaining access refers to the researcher's acquisition of consent to go where one wants, talk to whomever one wants, and obtain the information wanted for the study (Yin, 2014). The researcher followed the procedures outlined by Glesne (1999) to gain access with each participant by guaranteeing confidentiality and anonymity prior to data collection. To guarantee confidentiality and anonymity, the researcher had participants exclude their name from the written form utilized for discussion. The researcher also assured participants that their names would never be connected with their numbers for any reason during the study. The written responses as well as the audio that was transcribed by a third party gave random numbers to the participants.

All data, for the pre-service teachers, were collected at the one seminar during an hour time slot.

**Instrumentation.** The instruments included a survey with 8 questions pertaining to specific factors that may have caused them to choose their major [Appendix A]. The research questionnaire was distributed to all students with 100% participation. The questionnaire was comprised of a 5-point Likert scale, from strongly disagree to strongly agree, measuring factors such as desire to work with students, influence from parents, past agricultural teachers, friends, and their own experiences in agricultural organizations such as FFA and 4-H. Instruments provided opportunity for an in-depth examination

factors that influences students' choices to study the agriscience education major. These multiple sources of data collection were imperative to a case study design (Creswell, 2013).

**Data management and analysis.** All data were securely handled. This helped to ensure the analysis process had no effect on the course outcomes for the participants. Recordings of the group interviews, having received permission from the participants, were stored in the researcher's computer files. The electronically-recorded interviews were transcribed, word-for-word. The transcriptions were modified based on comments received during the member check, and the documents were stored in the researcher's secured computer files. The initial analysis of the data involved reading and coding of the post- reflections. Themes that emerged were coded accordingly.

**Role of the researcher.** The study was conducted from interpretivism epistemology. Interpretivism assumed that realities were socially constructed by participants in the study and that variables were complex and interwoven (Glesne, 1999). Thus, the researchers served as the data collection instrument and meanings were created through the researcher's interpretation of the participants' realities (Schwandt, 2000). The data gathered from participants were filtered through the feelings and experiences of the researcher as the data collection instrument to generate the complete data for the study (Patton, 1990).

**Ethical considerations.** The researcher committed to the guidelines outlined by Christians (2000). Thus, informed consent was established by providing full and open information about the study. Participants were also informed that their participation or non-participation would have no effect on course outcomes. Students were also made

aware that by participating in the study, they were agreeing to have their reflections saved anonymously for data analysis. Participants also knew that they could choose to not respond to a particular question. The researcher avoided deception by being honest with participants about their status and the purpose of the research. The researcher guaranteed privacy and confidentiality to all participants, by tracking all data with randomly assigned numbers instead of names, initials, or aliases.

***Limitations.*** A limitation of the study included over-use of reflections for data collection. The researchers could not control the number of additional reflections that participants were asked to complete during regularly scheduled coursework associated with the professional block. Also, the population was limited as there were only 19 pre-service teachers that were completing their studies to conduct a focus group with.

***Trustworthiness of the study.*** Trustworthiness was explained by Lincoln and Guba (1985) as encompassing the conventional components of internal validity, external validity, reliability, and objectivity. Lincoln and Guba proposed that conventional measures of quality were not appropriate for qualitative inquiries, and that the measure of trustworthiness was appropriate. The components of trustworthiness included credibility, transferability, dependability, and confirmability.

Credibility, or the likelihood that credible findings and interpretations were produced, was addressed in the study by using methods outlined by Lincoln and Guba (1985). Triangulation, the use of multiple sources of data collection methods, was guaranteed by utilizing the questionnaire.

Transferability addressed the question, “How can one determine the degree to which the findings of an inquiry have applicability in other contexts or with other

respondents?” (Lincoln & Guba, 1985, p. 218). The current study provided a thick description allowing other researchers to decide if making a transfer between the current study and future studies is possible. A thick description referred to providing enough evidence of the study to allow readers to determine if transferability of findings is possible.

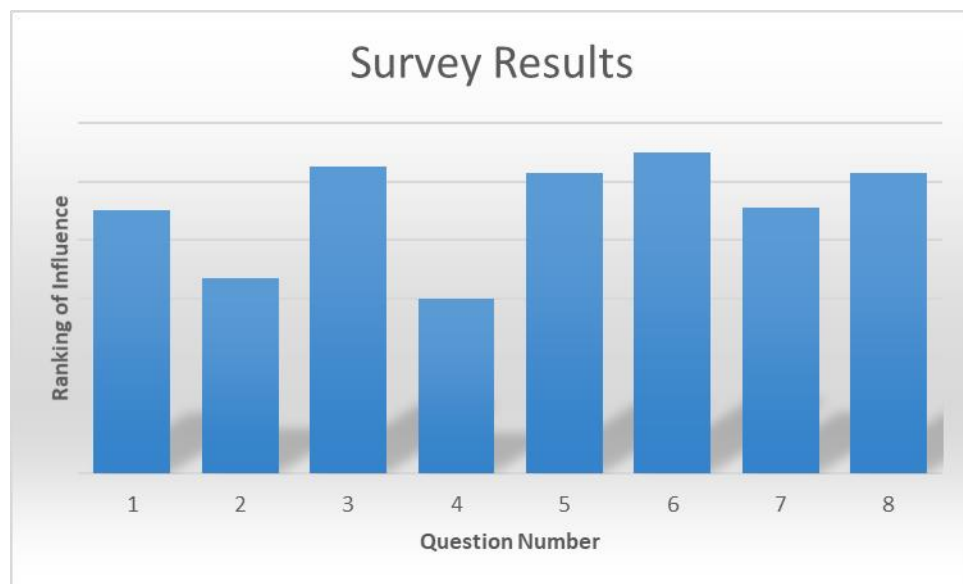
Dependability and confirmability were established through an analysis of the audit trail maintained by the researcher. Dependability referred to the likelihood of the findings being repeated if the study was replicated with the same participants in the same environments. Confirmability ensured that the findings reflected the characteristics of the participants in the given setting, not the biases, motivations, interests and perspectives of the researcher (Lincoln & Guba, 1985).



## CHAPTER 4

### RESULTS

From the data, the factors most influencing students to enter the major included: their experience with traditional agricultural student organizations (i.e. 4-H, FFA) #3, the opportunity to teach students #5, the opportunity to educate the public about agriculture #6, and the chance to teach a community about many aspects of agriculture #8.



#### 1.1 A Conceptual Image of Survey Results (Landis, 2018)

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions Factors Influencing Students to Choose Agriscience Education

Conclusions from the data included putting emphasis on FFA events and other agricultural related organizations' events that encourage members to use their strengths in scenarios dealing with educating the public. Specifically, educating the public about agriculturally-related concepts was important.

#### Recommendations

The researcher recommends that events that cater to high school students working with community members and teaching about agriculture be incorporated in FFA, 4-H and similar organizations. If such events were to be established, students would have the opportunity to find their passions for teaching others about agriculture. Such events could include a 4-H club or FFA chapter entering an inner-city school and teaching a lesson on agriculturally related topics of their choice. Students would develop the lesson on their own and be responsible for teaching others. Another event could be held by a college or university where students present an agricultural lesson to a panel of judges and are evaluated on teacher-like standards. Both events would trigger student's inner passion for educating others and possibly influencing them to study agriscience education as a degree and career for their future.

#### Recommendations for Further Research

The researcher recommends that this study be expanded in the future. The first way this study can be expanded is doing a follow up survey with the students from the

2017 professional block as most of them are placed in teaching jobs across the state.

Surveying their enjoyment of their career choice will allow for more factors to be shared that influence others to study agriscience education. This will allow the researchers to see how they are enjoying teaching. The researcher's other recommendation for further research is to continue the same or similar research longitudinally with the next block class to compare the results and add to the population being studied to increase the generalizability of the research.

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## APPENDIX A

### SURVEY QUESTIONS

My high school agricultural science teacher influences my decision.

My parents influence my decision.

My experience with traditional agricultural student organizations (i.e. 4-H, FFA,) influence my decision.

My friends influenced my college / career choice.

The opportunity to teach students influence my decision.

The opportunity to educate the public about agriculture influence my decision.

The opportunity to advise a student organization influence.

Chance to teach community about many aspects of agriculture influence my decision.

## APPENDIX B

### PANEL OF EXPERTS

1. Dr. M. Susie Whittington, Professor, Teacher Education
2. Caitlyn Black, MS Student
3. Aaron Giorgi, PhD student